

METHODS AND APPARATUS FOR HIGH-SPEED ACCESS TO AND SHARING OF STORAGE DEVICES ON A NETWORKED DIGITAL DATA PROCESSING SYSTEM

Abstract of the Invention

The invention provides a digital data processing system with improved access to information stored on a peripheral device. The system has a plurality of nodes, a peripheral device, a file system and a bypass mechanism. A first node (e.g., a client node) is connected to a second node (e.g., a server node) over a first communications pathway (e.g., a network). The second node is itself connected to a peripheral device (e.g., a disk drive) over a second communications pathway. The first node, too, is connected to the peripheral device over a third communications pathway. The file system, executing on the first and second nodes, is capable of responding to access requests generated by the first node for transferring data between that node and the peripheral device, via the second node and via the first and second communications pathways. The file system also maintains administrative information pertaining to storage on the peripheral device of data designated by such requests. That information includes, for example, physical storage location mappings for files and other data stored on the peripheral device. The bypass mechanism, which executes on at least the first node, intercedes in the response to at least selected input/output, or access, requests generated by that node. The bypass transfers data designated by such requests between the first node and the peripheral device over the third

communications pathway, in lieu of transferring that data via the second node and the first and second communications pathways. Such transfers by the bypass, however, are made using the administrative information maintained by the file system relating to storage of such data on the peripheral device.